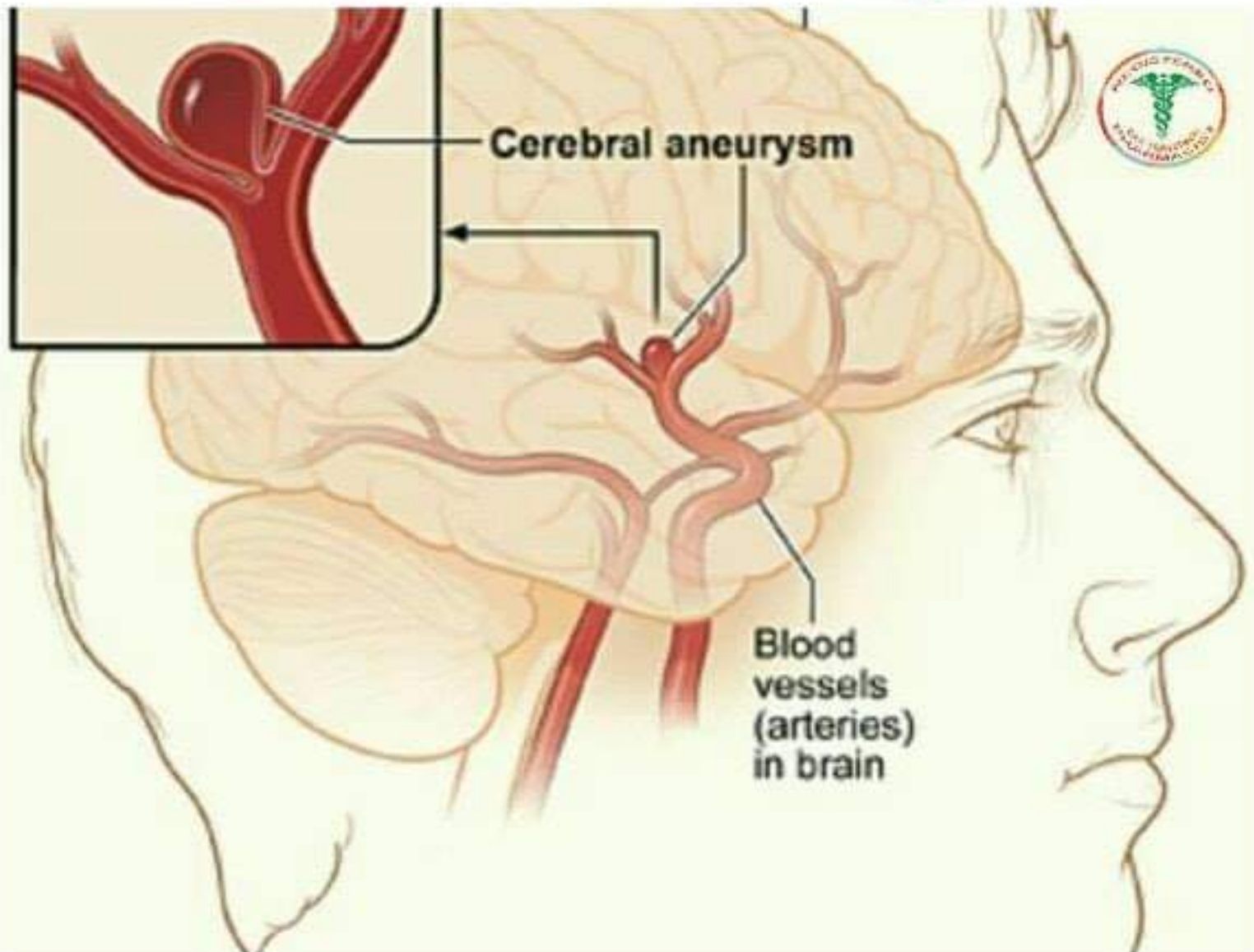


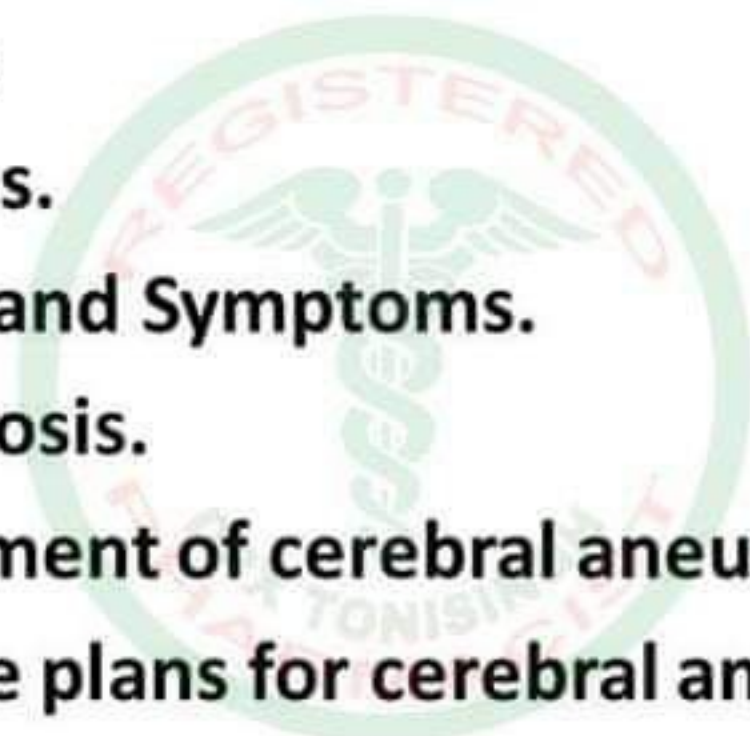
Cerebral Aneurysm



Outlines:

1. Introduction
2. Definition
3. Types
4. Causes.
5. Signs and Symptoms.
6. Diagnosis.
7. Treatment of cerebral aneurysm.
8. Future plans for cerebral aneurysm .
9. Nursing Care .

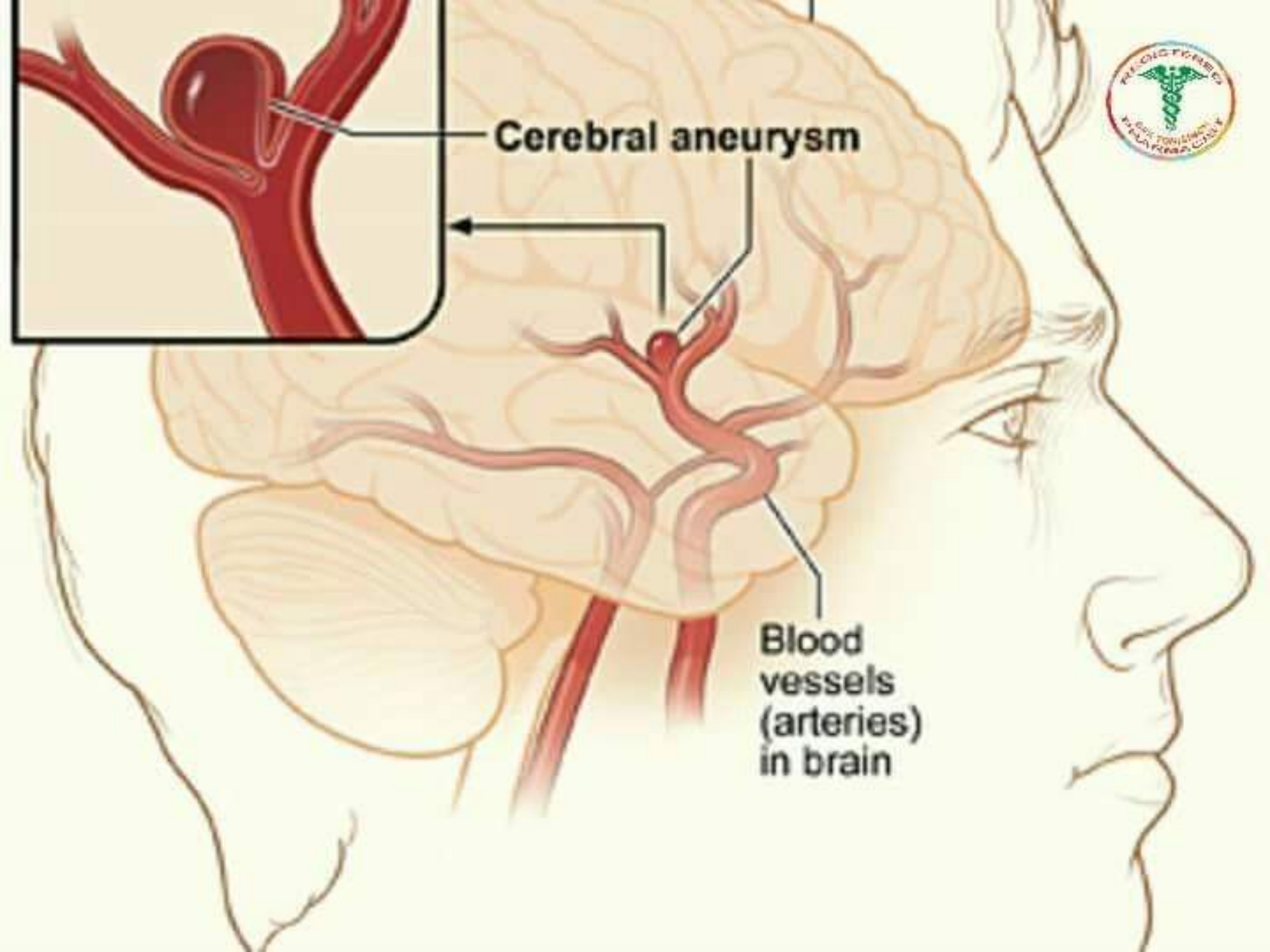
Fb/Nurse-Info





Cerebral aneurysm

Blood vessels (arteries) in brain

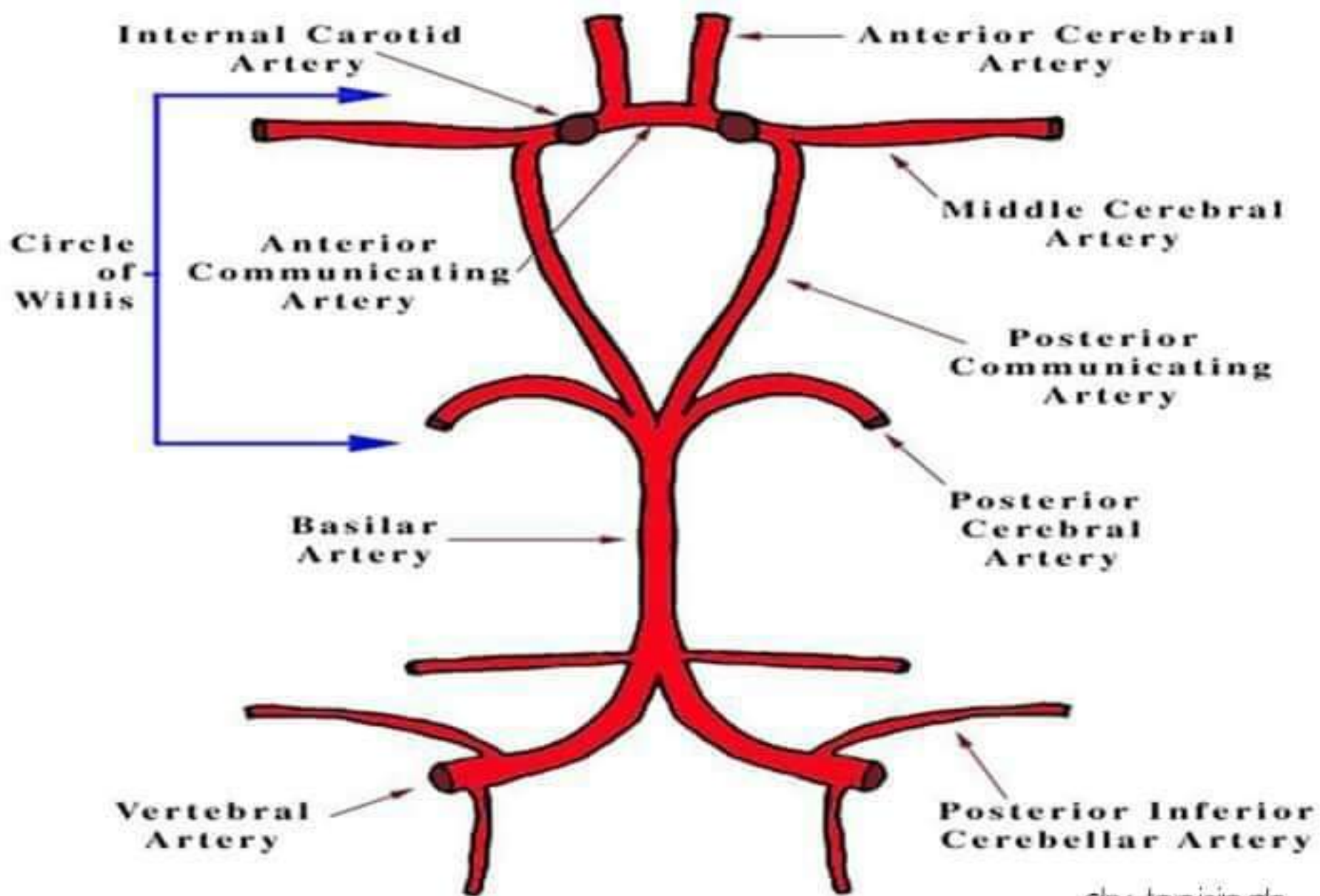


Introduction

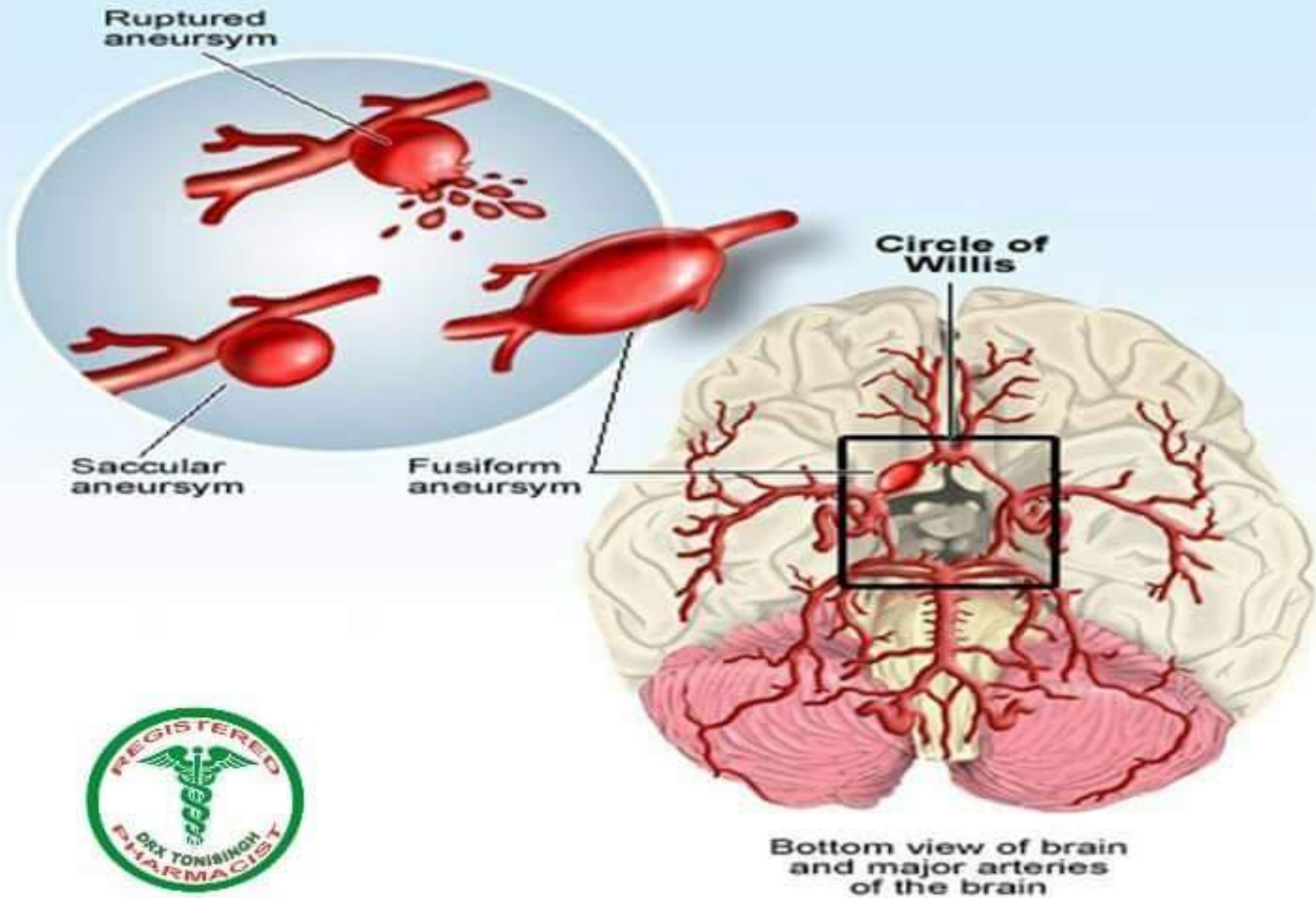
Blood to the brain is supplied by **four major blood vessels** that join together forming **Circle of Willis** at the base of the brain, **which are:**

1. Anterior cerebral artery.
2. Posterior cerebral artery.
3. Internal carotid artery.
4. Basilar artery.

CIRCLE OF WILLIS



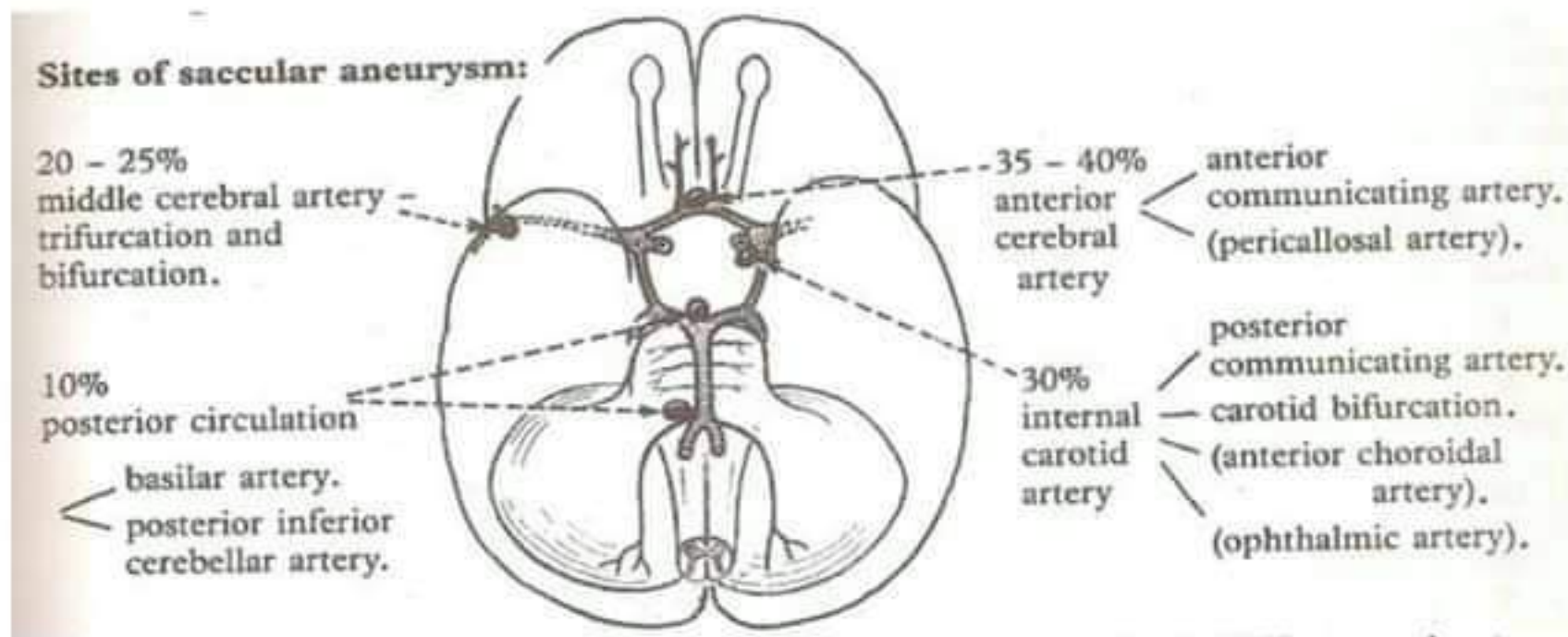
Brain Aneurysm



Cont. Introduction

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- **Artery junction points** may become **weak**, causing ballooning of the blood vessel wall that can form **a small sac or aneurysm**.



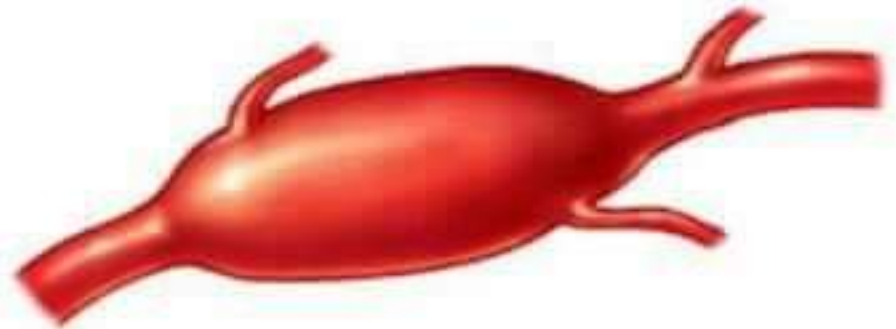
What is cerebral aneurysm?

- cerebral aneurysm is a bulge or balloon like dilatation/swelling of the wall of a blood vessel in the brain.
- Aneurysms develop because of a weakness in the wall of the vessel, usually at branch points.

Types of Cerebral aneurysm:



Saccular Aneurysm



Fusiform Aneurysm

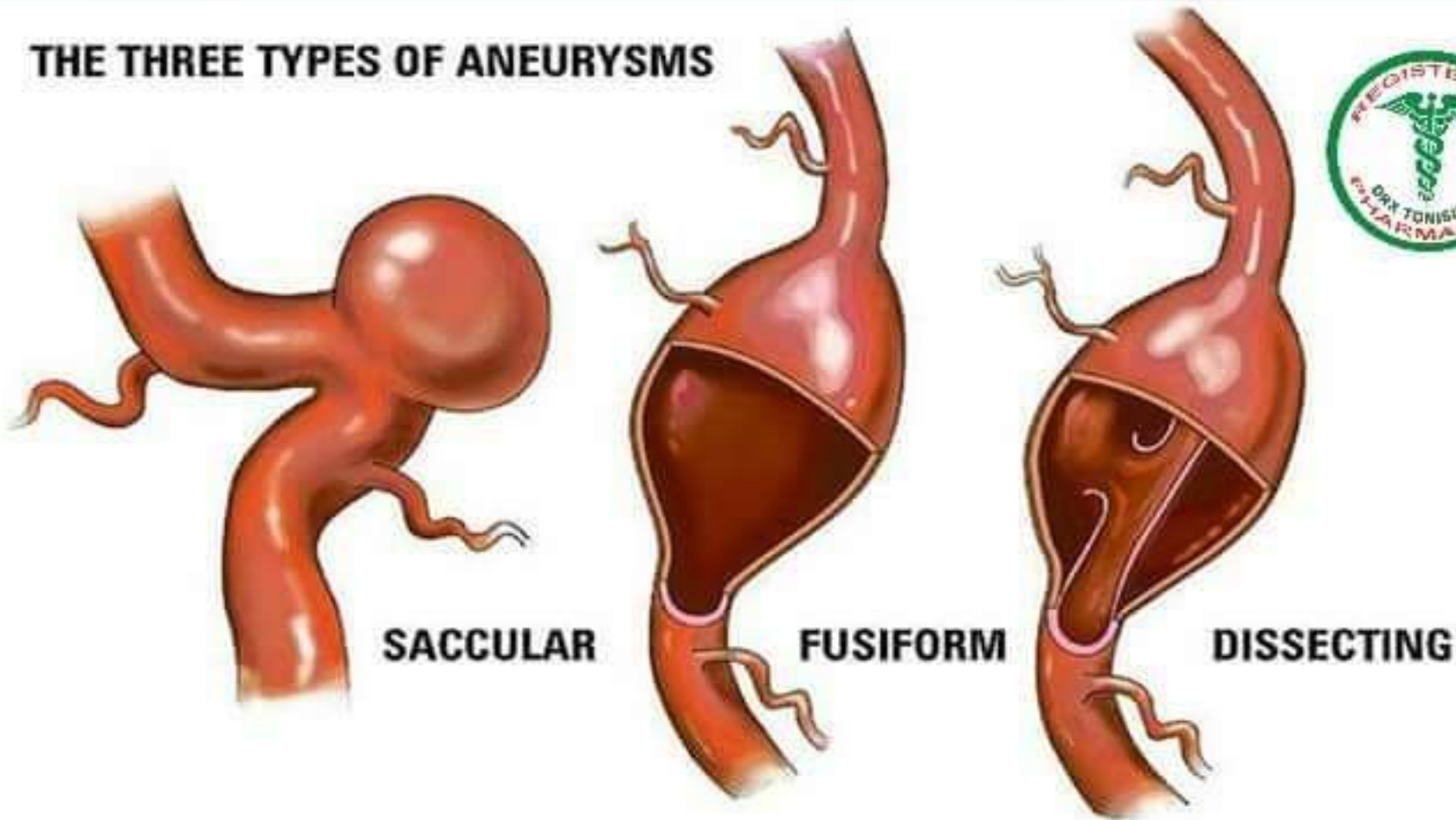


Ruptured Aneurysm



Types of Cerebral aneurysm:

THE THREE TYPES OF ANEURYSMS



Source: New York-Presbyterian Hospital; University of Maryland Medical Center;
M. Headworth; Mayfield Clinic

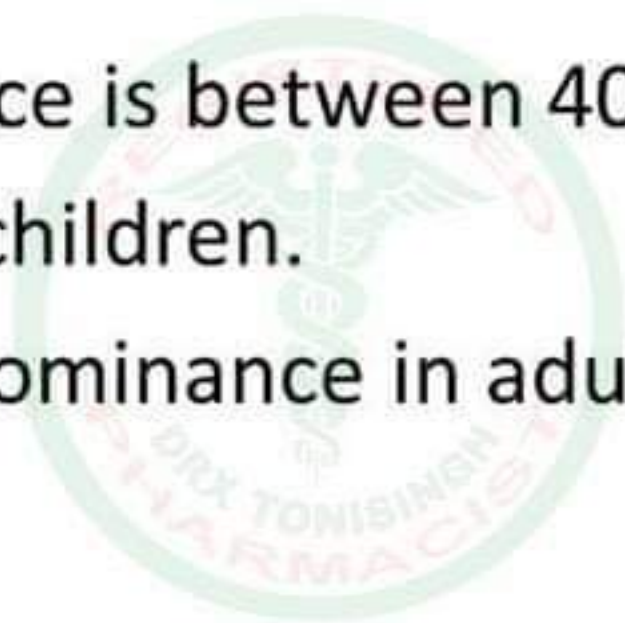
CHARLOTTE THIBAUT / Monitor staff

Why Aneurysms Develop?

- **We do not know why aneurysms develop** in a majority of cases, however the following may play a role:
 1. Congenital or familial inheritance
 2. Atherosclerosis
 3. Hypertension
 4. Connective tissue disorders
 5. Sickle cell anemia
 6. Infections
 7. Trauma
 8. Cigarette smoking
 9. Illicit drug use
 10. Alcohol

Who gets aneurysms?

- Peak incidence is between 40-60 years old.
- Very rare in children.
- Female predominance in adults



Symptoms associated with cerebral aneurysms and SAH

- **Headache:** This is characterized by the acute onset of severe pain, which patients often describe as "**the worst headache of my life.**"
- **Facial pain:** Aneurysms may produce facial pain.
- **Manifestations of meningeal irritation:**
Neck pain or stiffness

- **Alterations in consciousness:** The sudden elevation of ICP associated with aneurysmal rupture may lead to a severe decline in cerebral perfusion pressure, causing syncope (50% of cases). Confusion or mild impairment in alertness also may be noted.
- **Seizures:** are present in 25% of aneurysmal SAH cases, with most events occurring within 24 hours of onset.

- **Autonomic disturbances:** Subarachnoid accumulation of products of blood degradation may elicit fever. Nausea or vomiting, sweating, chills, and cardiac arrhythmias also may be present.
- **Visual symptoms:** Blurring of vision, diplopia, or visual field defects may be present.

How is brain aneurysm diagnosed?

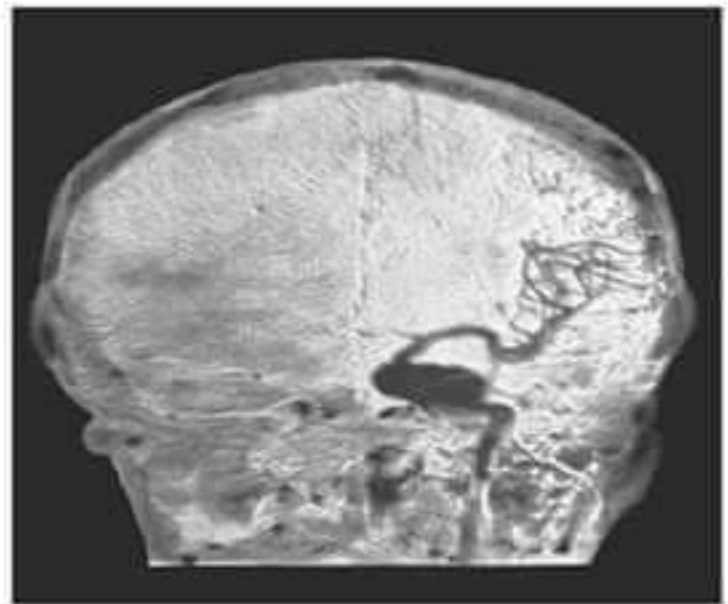
1- The history of the headache:

An acute onset of the worst headache of the patient's life, associated with a stiff neck



2- CT-scan & MRI:

This will show a subarachnoid hemorrhage in more than 90% of cases of ruptured aneurysm.



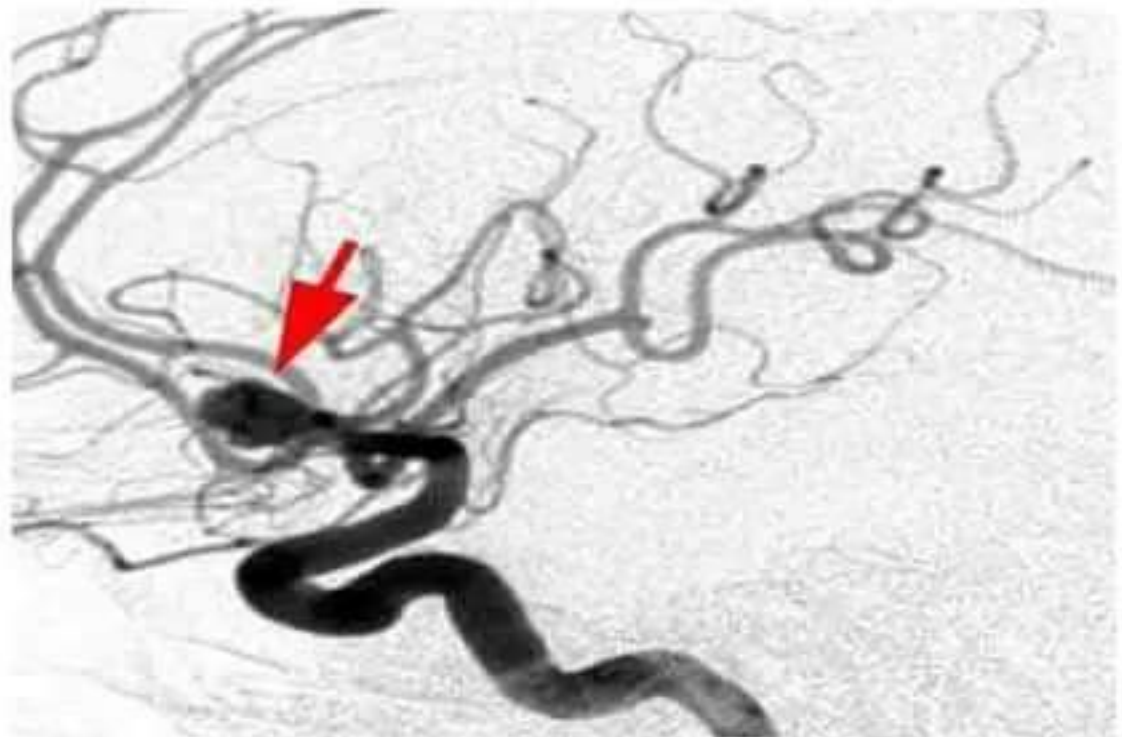
3- Lumbar puncture:

- In the few cases that are not recognized by CT, the health care practitioner may consider performing a lumbar puncture to identify blood in the cerebrospinal fluid that runs in the subarachnoid space.



4- Angiography:

(angio=artery + graphy= picture) is a procedure in which a small flexible tube is threaded into one of the brain's arteries, and dye is injected while pictures are taken.



Management

Aim



**Allow the brain to
recover from initial
insult (bleeding)**



**Prevent or treat
other complication**



Vasospasm





Management

Surgical

Medical

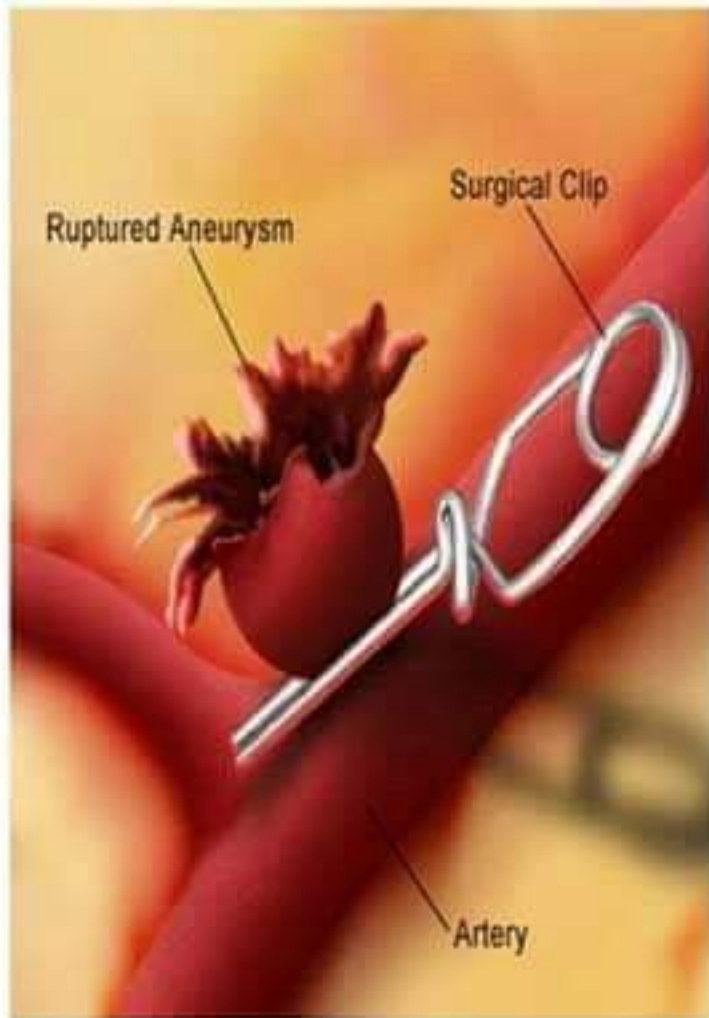
Clipping

Coiling

Medication

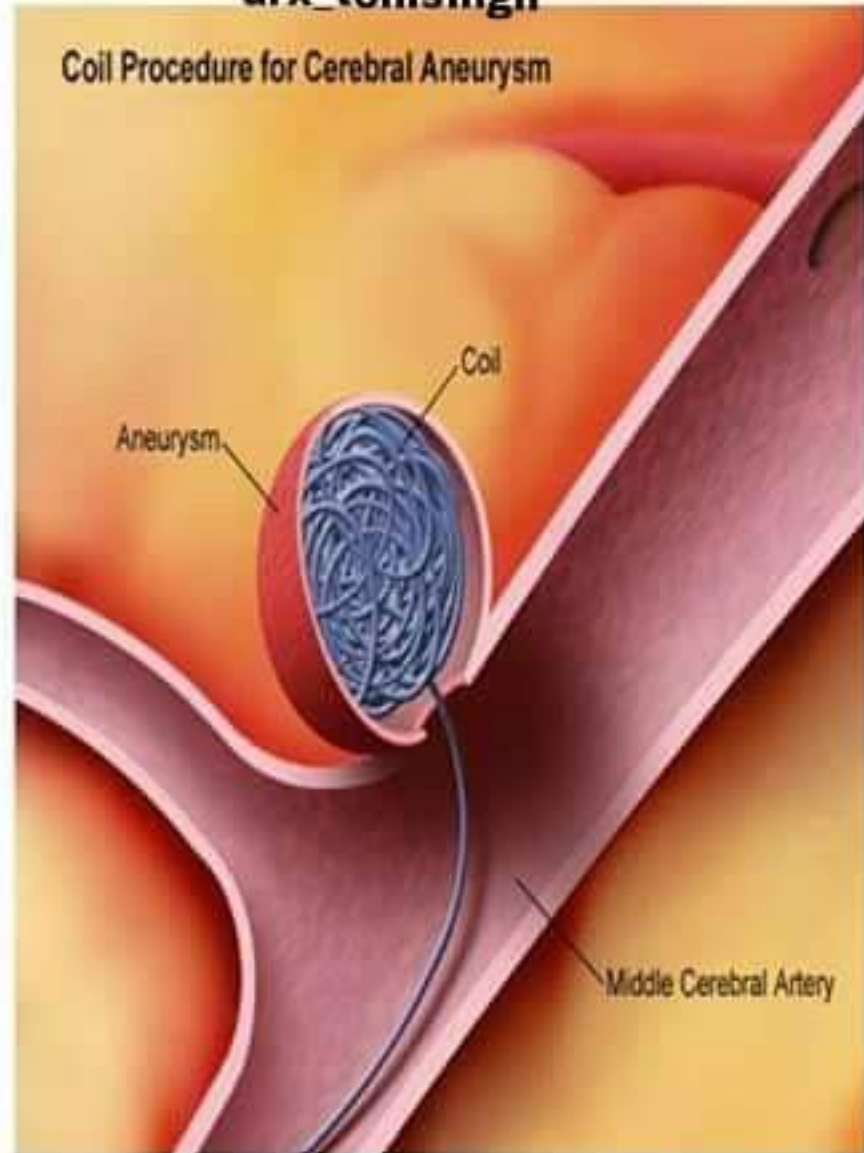
Surgical Management

Clipping Treatment for Cerebral Aneurysm



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Coil Procedure for Cerebral Aneurysm




Surgical Management

- **Clipping:** A neurosurgeon can operate on the brain by cutting open the skull, identifying the damaged blood vessel and **putting a clip across the aneurysm.**
- This prevents blood from entering the aneurysm and causing further growth or blood leakage.

Surgical Management

- **Coiling:** A neurosurgeon or interventional radiologist can thread a tube through the arteries, as with an angiogram, identify the aneurysm, and **fill it with coils of platinum wire or with latex.**
- This prevents further blood from entering the aneurysm and resolves the problem.

Medical Management

- Calcium channel blockers (**Nimodipine: (Nimotop)**, **Verapamil (Isoptin)**)
- Osmotic diuretic (**Mannitol 20%**)
- Antiepileptics (**Phenytoin**)
- Antihypertensives (**Nitropruside**)
- If surgery is delayed or contraindicated 
(**antifibrinolytic agents**)
- Analgesics (**acetaminophen**)
- Laxatives  to prevent straining to avoid \uparrow BP
- In addition to elastic stocking  to prevent DVT

Nursing Care



A B C

- Establish and maintain a patent airway as needed.
- Administer supplemental oxygen as ordered.
- Position the patient to promote pulmonary drainage and prevent upper airway obstruction.
- **Avoid** placing the patient in the **prone position** as well as hyper extending his neck.